Stream Smart Structure Options

The Golden Rule:

Let the stream act like a stream (or else!)

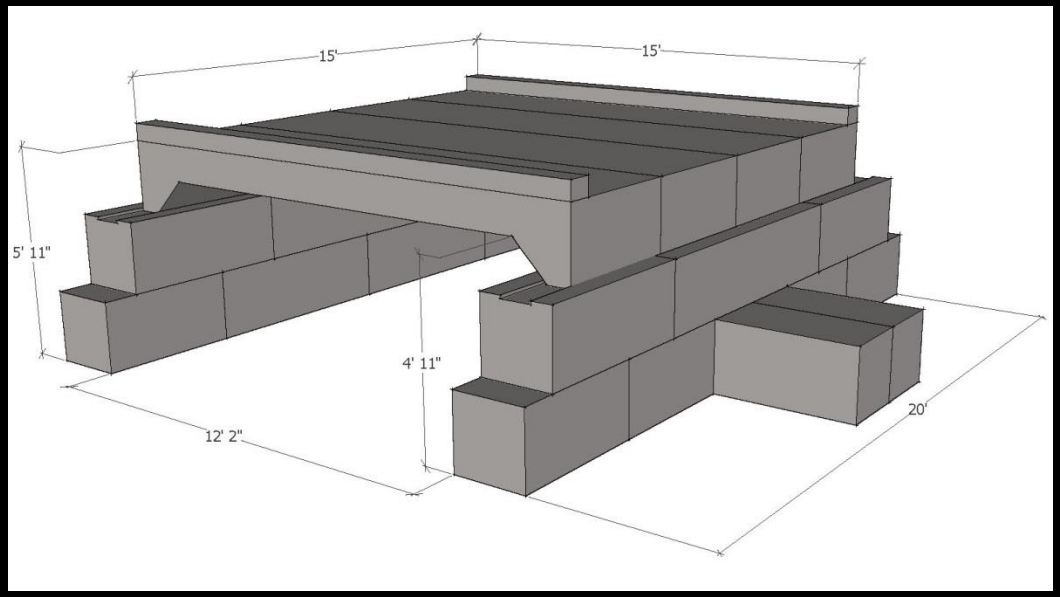
Stream Smart Options

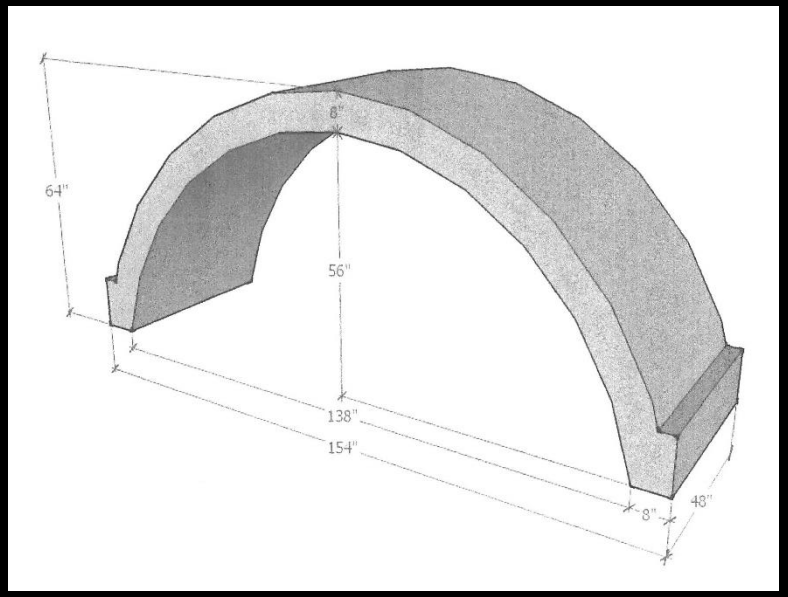
1) **Avoid** creating a crossing
2) **Remove** the crossing
3) **Open bottom** structure > channel width
   - Abutments for temporary bridge
   - Bridge or 3-sided box culvert
   - Arch culvert
4) **Embedded** culvert

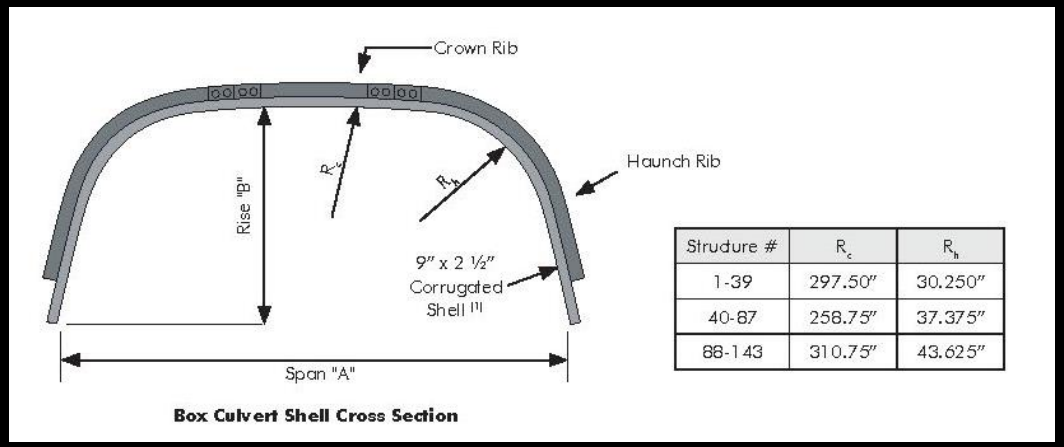

Replace crossing with permanent
abutments, temporary portable decks.

Permanent abutments temporary portable decks

Structure Choice

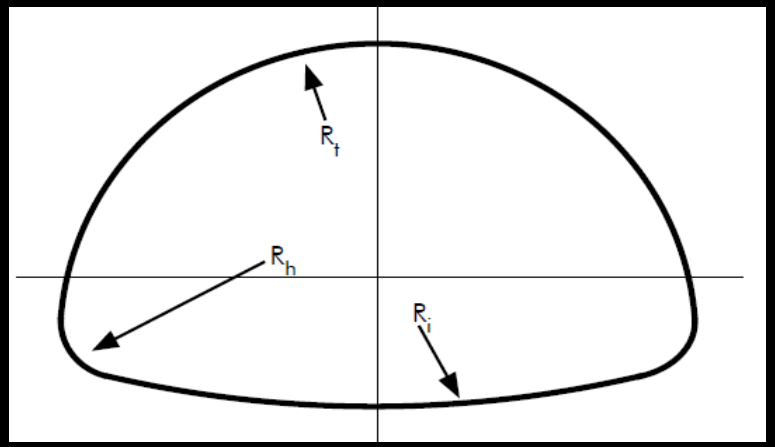






Strudure #	R_c	R_h
1-39	297.50"	30.250"
40-87	258.75"	37.375"
88-143	310.75"	43.625"

Box Culvert Shell Cross Section



Open-Bottom Arch

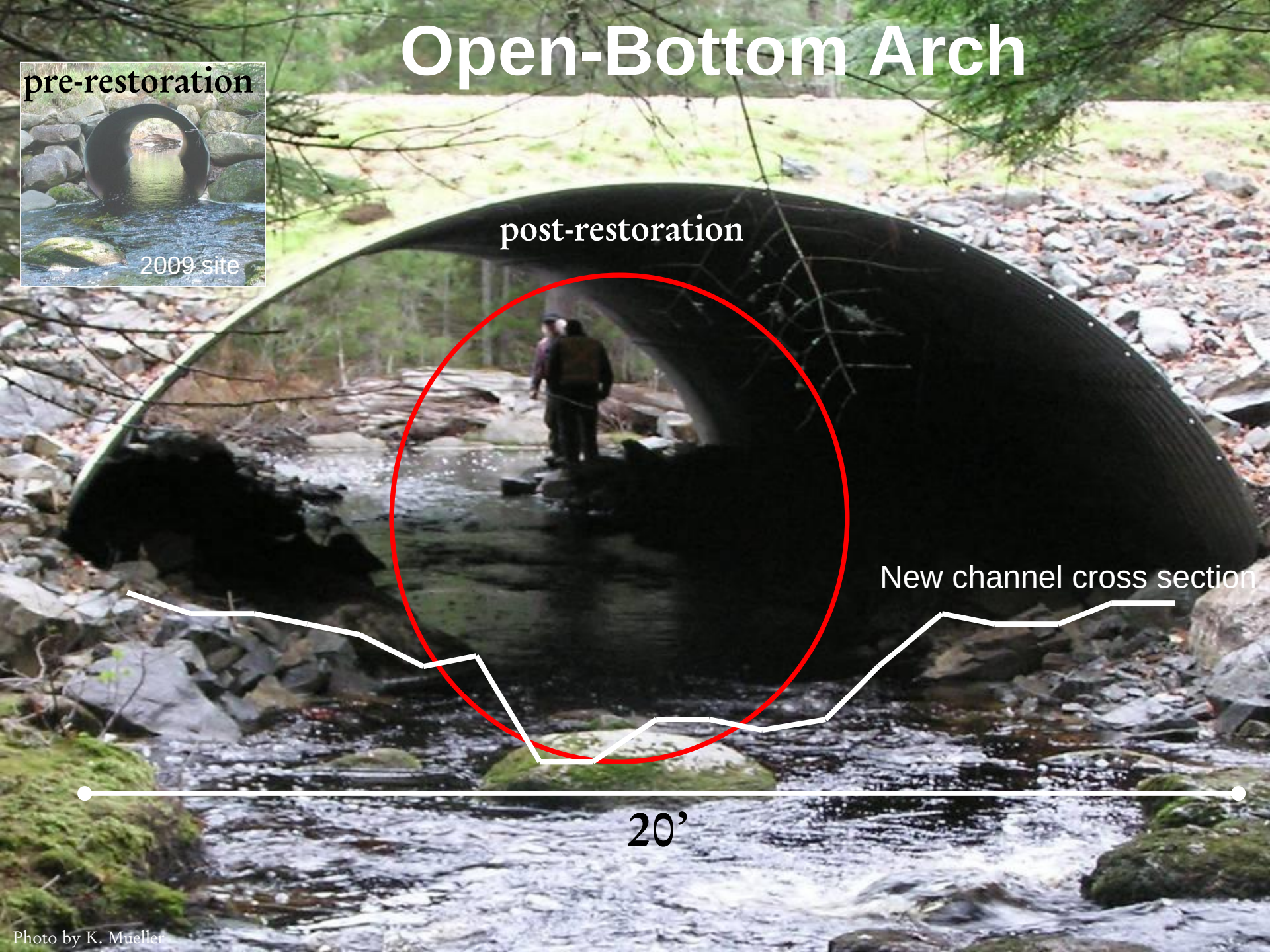


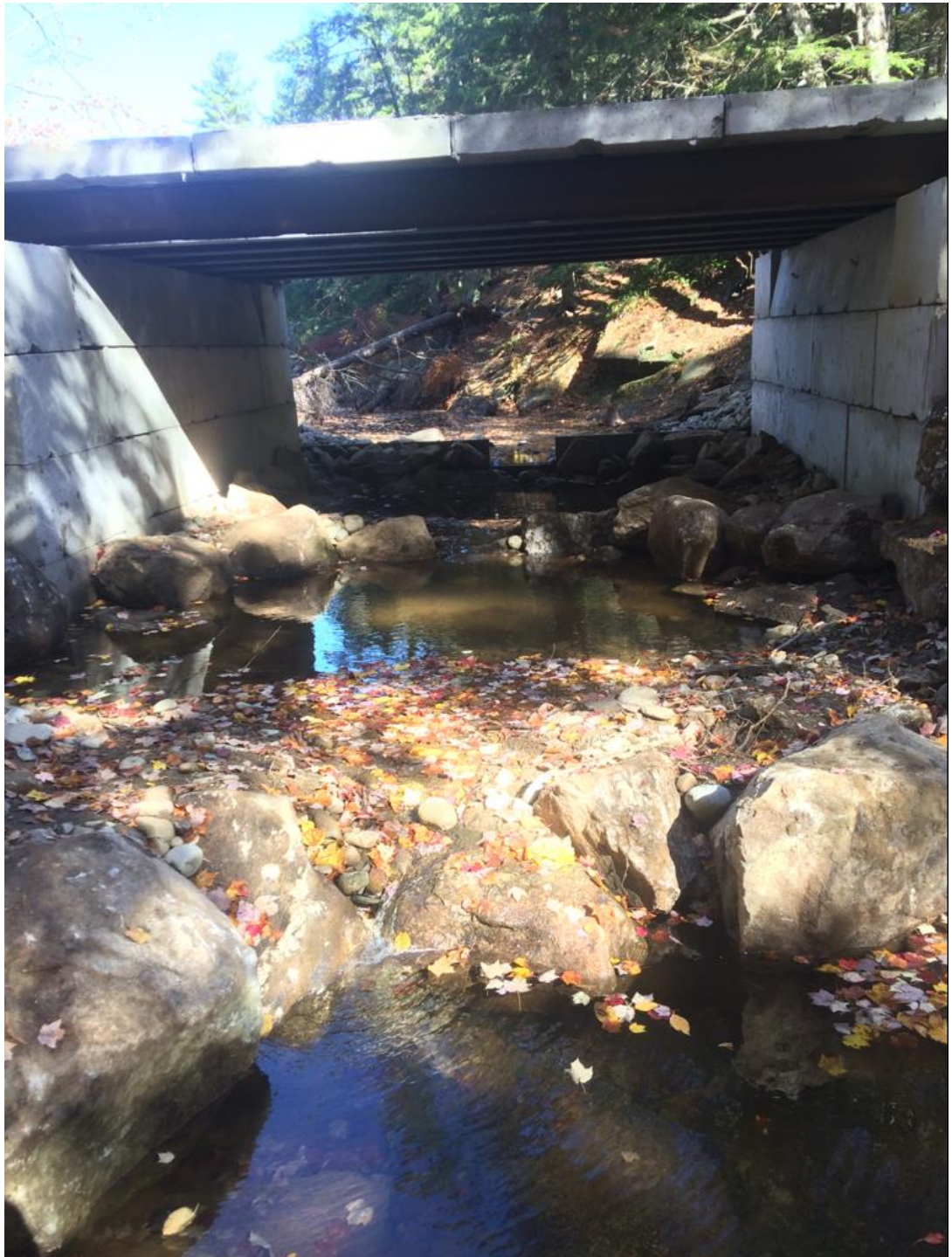
Photo by K. Mueller

Small bridge on low volume road

Large bridge on low volume road

Before

After



Bridge concrete abutments and deck, steel girders

Bridge concrete abutments and deck, steel girders

Concrete bridge deck

Before

After

3-Sided Box Culvert

Before

After

Concrete Arch Culvert

Before

After

Embedded Box Culvert

Before

After

Embedded Pipe Arch Culvert

Before

After

Rules of Thumb (4 S's)

Span the stream

Set elevation right

Slope and skew match stream

Substrate in the crossing

The Golden Rule:
Let the stream act like a stream